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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,800

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Naoya Amino

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EXAMINER

EASHOO, MARK

ART UNIT

PAPER NUMBER

1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,800	Applicant(s) AMINO ET AL.	
	Examiner MARK EASHOO	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 2003/0139523) in view of Hopkins et al. (US 2003/0220437) and Kawakami et al. (US Pat. 4,748,168).

Regarding claim 10, Nakamura et al. teaches a rubber composition (§85) comprising 100 parts by weight of rubber containing 50 to 90 parts by weight (§89) of a styrene-butadiene copolymer and another diene rubber such as natural rubber or polybutadiene (§88) and 1 to 50 parts by weight of a conjugated diene rubber gel (§89) that is preferably a styrene-butadiene rubber (§0027-28) having a toluene swelling index of 16 to 70 (§85).

Nakamura et al. does not teach that the aromatic vinyl-conjugated diene copolymer rubber has a glass transition temperature of -40° C to -5° C. However, Hopkins et al. does teach emulsion and solution polymerized styrene-butadiene rubbers having a glass transition temperature above -50° C (§41). At the time of the invention, a person of ordinary skill in the art would have found it obvious to use an emulsion or solution polymerized styrene-butadiene rubber with a glass transition temperature above -50° C, as taught by Hopkins et al., in the rubber composition, as taught by Nakamura et al., and would have been motivated to do so for easier processibility of the rubber.

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Nakamura et al. also does not teach that the glass transition temperature of the aromatic vinyl-conjugated diene copolymer rubber and the glass transition temperature of the rubber gel satisfy the following formula:

$$TgA - 10 < TgB < TgA + 10$$

However, Kawakami et al. teaches a blend of styrene-butadiene rubbers having a glass transition temperatures that are close to equal (2:21-31). Nakamura et al. and Kawakami et al. are combinable because they are from the same field of endeavor, namely blends of styrene-butadiene rubbers. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a diene with a glass transition temperature being within ten degrees of glass transition temperature of the rubber gel, as taught by Kawakami et al., in the rubber composition, as taught by Nakamura et al., and would have been motivated to do so in order to ensure full compatibility between the two rubber components (2:32-38).

Regarding claim 11, Nakamura et al. teaches a Mooney viscosity of 50 to 200 (¶0082) with 105 and 122 being explicitly disclosed (Table 3).

Regarding claim 12, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains 80 to 99% weight of conjugated diene monomer units, 1 to 20% by weight of aromatic vinyl monomer units, and 0% to 1.5% by weight of crosslinking monomer units (¶20) (polyfunctional vinyl monomer units) (¶37).

Regarding claim 13, Nakamura et al. additionally teaches that the rubber composition further contains 10 to 99% weight of silica and 1-90% weight of carbon black (¶99) out of 10-200 parts by weight of total filler (¶98). The carbon black has a nitrogen adsorption specific surface area of 5 m²/g to 200 m²/g (¶92).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 2003/0139523).

Regarding claim 14, Nakamura et al. teaches a rubber composition (¶85) comprising 100 parts by weight of rubber containing 50 to 99 parts by weight (¶89) of a styrene-butadiene copolymer rubber (¶88) and 1 to 50 parts by weight of a conjugated diene rubber gel (¶89) having a toluene swelling index of 16 to 70 (¶85), and 10 to 200 parts by weight (¶98) of silica (¶90).

Nakamura et al. does not teach that the following formulae (2) and (3) are satisfied:

$$F = (R + S) / (R + T + A) \quad (2)$$

$$0.6 < F < \text{or} = 0.9 \quad (3)$$

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wherein F: flexible segment fraction, R: compounding amount of rubber, S: compounding amount of silica, T: total amount of filler including silica, A: extraction amount of acetone. However, it is well known in the art to optimize result effective variables such as amount of flexible units. At the time of the invention, a person of ordinary skill in the art would have been found it obvious to discover the optimum or workable range for these variables through routine experiment, and the motivation to do so would have been to increase the flexibility of the resultant rubber products such as tires, thus allowing the tires to absorb more shock when driving. See MPEP § 2144.05.

Regarding claim 15, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains 80 to 99% weight of conjugated diene monomer units, 1 to 20% by weight of aromatic vinyl monomer units, and 0% to 1.5% by weight of crosslinking monomer units (¶20) (polyfunctional vinyl monomer units) (¶37).

Response to Arguments

Applicant's arguments, see pages 4-8, filed December 31, 2007, with respect to claims 10-13 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Nakamura et al. (US 2003/0139523) in view of Hopkins et al. (US 2003/0220437) and Kawakami et al. (US Pat. 4,748,168).

Applicant's arguments filed December 31, 2007 have been fully considered but they are not persuasive, because:

A) In response to applicant's argument that there is no suggestion to modify the reference, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to optimize the flexible segment fraction of the composition would be to increase the flexibility of the resultant rubber products such as tires, thus allowing the tires to absorb more shock when driving.

B) Applicants argument of unexpected results is not persuasive. In order to show unexpected results the applicant must provide data showing that the results are unexpected, not merely improved. While the data cited by the applicant on page 7 shows that the friction force is increased with the claimed flexible segment fraction, they have not shown that this result is unexpected.

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Correspondence

Any inquiry concerning this communication should be directed to MARK EASHOO at telephone number (571)272-1197.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796
19-Mar-08

Mark Eashoo
SPE
Art Unit 1796